McCain Foods USA, Inc.	**)**	**Departmental**
Aroostook County	**)**	**Findings of Fact and Order**
Easton, Maine	**)**	**Air Emission License**
A-436-70-B-A	**)**	**Amendment #1**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, pursuant to 38 M.R.S.A., Section 344 and 590, the Department finds the following facts:

I. Registration

A. Introduction

FACILITY	McCain Foods USA, Inc. (McCain)
LICENSE NUMBER	A-436-70-B-A
LICENSE TYPE	Part 70 Major Modification
NAICS CODES	311411
NATURE OF BUSINESS	Frozen Potato Products
FACILITY LOCATION	Easton, Maine
INITIAL LICENSE ISSUANCE DATE	December 2, 2004
AMENDMENT ISSUANCE DATE	April 13, 2006
LICENSE EXPIRATION DATE	December 2, 2009

1. McCain Foods USA, Inc. (McCain) of Easton, Maine was issued their initial Part 70 Air Emission License A-436-70-A-I on December 2, 2004, permitting the operation of emission sources associated with their potato processing facility. The facility was later authorized to operate a temporary oil fired boiler through a letter from the Department dated December 23, 2004.

2. McCain has requested an amendment to their license to install two new boilers designated Boilers #8 and #9, which will replace Boilers #2 and #3. The proposed new boilers have a maximum design heat input capacity of 49.5 MMBtu/hr (330 gal/hr) each.

3. McCain has requested to revise the maximum heat input capacity and potential license SO_2 emissions for the existing flare due to more recent biogas information.

A. Emission Equipment

McCain Foods is proposing to operate the following new equipment:

Proposed Fuel Burning Equipment

Equipment	**Maximum Capacity (MMBtu/hr)**	**Fuel Type, % Sulfur**	**Maximum Firing Rate (gal/hr)**	**Stack #**
Boiler #8	49.5	#6 fuel oil, 0.5% * biogas	330	17
Boiler #9	49.5	#6 fuel oil, 0.5% *	330	18

* Based on a 30-day rolling average

B. Application Classification

The modification is considered to be major if the net emissions increase resulting from the proposed changes will exceed specific significant emissions increase levels. No changes are being proposed to the existing equipment or operations at McCain other than the replacement of Boilers #2 and #3 with Boilers #8 and #9. However, within the past five years, a new emergency generator was licensed and installed in June 2002. Therefore, the net emissions increase for the proposed modification compares the actual emissions from Boilers #2 and #3 (emission decreases) to the potential emissions for Boiler #8 and #9 plus emissions from the emergency generator (emission increases).

Usually, operations for the two years prior to submittal of the license application are used in the netting analysis for actual emissions decreases. However, the past two years are not representative of normal operations for both Boilers #2 and #3 due to operational problems with these boilers. Therefore, for the purpose of netting analysis, current actual emissions from December 2001 through November 2003 were used for Boiler #2 and Boiler #3.

The following table illustrates the net emission increases for all criteria pollutants:

	PM_{10} (tpy)	SO_2 (tpy)	NO_x (tpy)	CO (tpy)	VOC (tpy)
INCREASES					
New boiler #8 (potential)	17.4	189.2	71.6	17.4	1.7
New boiler #9 (potential)	17.4	130.2	71.6	17.4	1.7
Emergency generator	0.1	0.1	1.8	0.4	0.1
Total Increases	34.9	319.5	145.0	35.2	3.5
DECREASES					
Existing Boiler #2 (actuals)	3.0	22.7	7.6	0.5	0.1
Existing Boiler #3 (actuals)	23.6	176.9	47.3	3.9	1.1
Total Decreases	26.7	199.6	54.9	4.4	1.2
NET EMISSIONS INCREASE	8.2	119.9	90.1	30.7	2.3
Major Modification Thresholds	15	40	40	100	50

Based on the proposed emission increases, this application is a major modification to a major source. The proposed modification is major for SO2 and NOx only. The new emission units, Boilers #8 and #9, are subject to Best Available Control Technology (BACT) requirements.

II. REGULATIONS AND REQUIREMENTS

Project Description

McCain's Easton facility is a potato processing plant which produces frozen potato products, such as french fries and tater tots, for the retail and service markets. The site consists of one main manufacturing building and several smaller buildings. There will be no changes to production at the plant as a result of the boiler replacement project, and no changes are being proposed to the existing boilers or process equipment other than the elimination of Boilers #2 and #3. Furthermore, no changes will be made to the footprint of the manufacturing building or to other nearby structures as part of this project.

McCain is proposing to install two new packaged watertube boilers capable of providing 40,000 lb/hr of steam each. The maximum heat input capacity of each boiler will be 49.5 MMBtu/hr. The boilers will fire primarily #6 fuel oil with a sulfur content of 0.5% or less by weight. The maximum firing rate on residual fuel oil will be approximately 330 gallons per hour for each boiler, assuming a heating value of 150,000 Btu/gal. One of the boilers, designated Boiler #8, will be equipped with a dual-fuel burner which will allow combustion of biogas from wastewater treatment operations in addition to fuel oil combustion. Exhaust from each of the new boilers will be vented to new stacks. The stack for Boiler #8 will be 90 feet in height above ground-level, the same height as the current stack for Boiler #3, which is being replaced. The stack for Boiler #9 will be 75 feet in height, the same height as the current stack for Boiler #2 which is also being replaced.

In addition to the boiler replacement, McCain is proposing to revise the licensed potential emissions from the existing biogas flare to account for recent biogas data. No physical changes are being proposed to the flare, and actual emissions and operation of the flare are expected to decrease substantially following installation of the proposed new boilers.

Existing Fuel Burning Equipment

McCain is currently licensed to operate five boilers (Boilers #1, #2, #3, #4, and #5) at the Easton facility. After the new boilers are installed, McCain will retain Boilers #1, #4, and #5. Boiler #1 will be the smallest boiler, with a maximum heat input capacity of 22.5 MMBtu/hr. Boiler #4 is rated at 60.0 MMBtu/hr and has a maximum fuel firing rate of 400 gal/hr. The largest boiler, Boiler #5, is rated at 98.5 MMBtu/hr and has a maximum fuel firing rate of 656 gal/hr. These existing boilers combust #6 fuel oil. The sulfur content of the fuel oil is limited to 2.0 percent by weight for Boilers #1 and #4 and 0.5 percent, on a 30 day rolling average basis, for Boiler #5. These three existing boilers will continue to supply steam and heat to the facility, along with the two new boilers. No changes are proposed to the existing boilers or to the emission limitations for these boilers as specified in the current air emissions license.

The existing Boilers #2 and #3 will be replaced by the new boilers. Boiler #2 is identical to Boiler #1, with a maximum heat input capacity of 22.5 MMBtu/hr. Boiler #3 has the same capacity as Boiler #4 (60 MMBtu/hr) with a firing rate of 400 gallons/hour. Both boilers fire #6 residual fuel oil with a sulfur content of 2.0 percent or less. Potential emissions from the new boilers will be less than potential emissions for the two boilers that are being replaced for SO_2, NOx, and PM.

McCain is currently allowed to burn reclaimed vegetable oil and specification waste oil in each of the existing boilers. Usually, the vegetable oil and waste oil are added to the fuel oil storage tanks for combustion in the boilers. McCain will also be allowed to burn vegetable oil and specification waste oil in the new boilers as well. The sulfur content of the waste oil will not exceed the allowable sulfur content of the fuel oil burned in these boilers.

Other Air Emission Sources

McCain is also licensed to operate an emergency fire pump, an emergency generator and process equipment including fryers and dryers. No changes are being proposed to operation or emission limits for this equipment. In addition to fuel-burning and process equipment, McCain is licensed to flare biogas from the wastewater treatment operations. SO_2 is produced from the conversion of hydrogen sulfide (H_2S) in the biogas during flaring. Based on more recent biogas data obtained by McCain, the concentration of H_2S in the biogas and the density of the biogas may be higher than previously assumed. Therefore, the licensed maximum heat input capacity of the flare and the short-term SO_2 emission limit for the flare will be revised. The proposed increase in licensed capacity and potential emissions for the flare does not reflect any change in actual emissions or operation of the flare. Following installation of the proposed new boilers, the biogas will be burned in Boiler #8 whenever possible, to provide process steam and heat to the facility, rather than being flared. The use of the flare is expected to decrease when the new boiler comes on-line, however, as flaring of the biogas may be necessary at times, the biogas flare will continue to be licensed.

New Fuel Burning Equipment

Boiler #8 will have a dual fuel burner which will allow McCain to fire both biogas from wastewater treatment operations and fuel oil in the boiler. With the exception of SO_2, the maximum emissions from Boiler #8 will be the same or less when firing biogas in combination with fuel oil than when firing fuel oil alone. The maximum heat input for Boiler #8 firing biogas only will be 26.5 MMBtu/hr. Thus, with the maximum amount of biogas being fed to the boiler, biogas will make up approximately 50 percent of the boiler’s maximum load. The remainder would be from fuel oil firing.

Each of the two new boilers is expected to be operated with economizers. With economizers, the maximum heat input capacity of each of the boilers is reduced to 46.7 MMBtu/hr. However, if the economizers are not operational, the maximum input capacity of these boilers is 49.5 MMBtu/hr each. For flexibility, these boilers will be licensed at the maximum heat input capacity without economiziers.

A. New Source Performance Standards (NSPS)

When firing fuel oil, the new boilers (Boilers #8 and #9) are required to comply with the provisions of 40 CFR Part 60 Subpart Dc for new industrial-commercial steam generating units firing fossil fuels and with a maximum design heat input capacity of 100 MMBtu/hr or less and greater than or equal to 10 MMBtu/hr constructed after June 9, 1989. The following is an overview of the requirements.

- The source must meet an SO_2 emission limit of 0.50 lb/MMBtu or combust oil with a sulfur content of 0.5 percent (by weight) or less, on a 30-day rolling average basis;
- Visible emissions shall not exceed 20% opacity on a six (6) minute block average basis, except for one (1) six (6) minute block average period per hour of not more than 27% opacity.;
- The source must conduct an initial performance test within 30 days of achieving maximum production rate and within 180 days of initial startup;
- The source must use Method 19 to determine hourly and 30-day average SO_2 emission rates or, for sources burning oil and limiting the fuel sulfur content, the fuel sampling and analysis procedures may be selected as an alternative;
- The source must use Method 9 and operate a continuous emission monitoring system for determining the opacity of stack emissions; and
- The source must comply with additional reporting and record keeping requirements as outlined in 40 CFR 60.48c.

McCain will comply with NSPS for SO_2 when burning fuel oil in the new boilers by firing residual oil with a sulfur content of 0.5 percent or less by weight, on a 30-day rolling average basis. Compliance with the SO_2 standard will be ensured through the fuel sampling and analysis procedures. Two storage tanks will be used to supply fuel oil to the new boilers as well as to existing Boiler #5. McCain will use ASTM D4294 for determining the sulfur content of the fuel oil samples. Use of this methodology was approved by the Department and by EPA for the testing of fuel oil samples for Boiler #5 and will be acceptable for Boilers #8 and #9 as well.

As indicated previously, Boiler #8 will be designed to fire biogas generated from wastewater treatment operations in addition to firing residual fuel oil. The biogas combustion is not subject to Subpart Dc of NSPS. Biogas is not intended as a fuel subject to the requirements specified in Subpart Dc. The intent of Subpart Dc is to establish emission standards for fossil fuels. "Fossil fuel" is defined in Section 60.41 (b) of Subpart D of 40 CFR Part 60 as "natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat". Biogas is not derived from natural gas, petroleum, or coal. Biogas is a mixture of gases, mainly methane and carbon dioxide, produced by bacteria during anaerobic digestion of potatoes from the waste water treatment system. Thus, combustion of biogas in Boiler #8 is not subject to the requirements of Subpart Dc.

B. Best Available Control Technology

Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent best practical treatment (BPT), as defined in Chapter 100 of the Air Regulations. Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT) as defined in Chapter 100 of the Air Regulations. BACT is a top down approach to selecting air emission controls considering economic, environmental and energy impacts. The following is a summary of the BACT analysis submitted in McCain's application dated November 2005. The Department has verified and agreed with the application's BACT analysis and findings.

Boilers #8 and #9

McCain is proposing to install two new package boilers rated at 49.5 MMBtu/hr, each. The new boilers will replace two existing boilers and will be used to help meet essential steam demands for their process. Residual fuel oil is being proposed as the sole fuel for one of the two new boilers (Boiler #9) and the primary fuel for the second new boiler (Boiler #8). Some biogas from the wastewater treatment operations will be burned in Boiler #8. When Boiler #8 is fired with biogas in combination with fuel oil, SO_2 emissions will be higher than when this boiler is fired solely with fuel oil. For all other pollutants, emissions from this boiler will be the same or lower when firing a combination of biogas and fuel oil than when firing fuel oil alone.

McCain reviewed several control technologies and strategies for the proposed boilers. An extensive overview of this BACT analysis can be found in McCain's application submittal dated November 2005. The following is a summary of these results.

NOx Emissions

Potential NOx emissions from the new boilers assumed a fuel-bound nitrogen content of 0.45 percent for the residual fuel oil. This value was based on evaluation of fuel oil analysis obtained by McCain for fuel oil purchased in recent years and on discussions with their fuel oil supplier. For more information regarding fuel-bound nitrogen, refer to McCain's application dated November 2005.

BACT for NOx emissions included the review of several control technologies, including; Selective Catalytic Reduction, Ammonia injection, SCONOx technology, Low-NOx burners, Staged Air/Fuel, and Flue Gas Recirculation. For either technical or economic reasons, many of these control strategies were not considered BACT. The use of low NOx burners, staged air, and Flue Gas Recirculation, and a limit of 0.33 lb/MMBtu are considered BACT for NOx emissions.

SO_2 Emissions

During the combustion process, SO_2 is formed through the oxidation of sulfur contained in the fuel oil. For typical fuel oil combustion, more than 95% of the fuel sulfur is converted to SO_2. There are two general methods used to control SO_2 emissions from fuel oil combustion-limiting fuel sulfur content and post-combustion treatment of flue gases. Technologies including Wet Scrubbing, Flue Gas Desulfurization, Spray Drying, Furnace or Duct Injection, and Alternative Fuels, were determined not to be BACT based on economic or technological infeasibility.

As mentioned before, SO_2 emissions will be higher when a combination of biogas and fuel oil is fired in Boiler #8 than when this boiler is fired solely on fuel oil. SO_2 emissions result from the conversion of H_2S in the biogas to SO_2 during combustion. Under normal operating conditions, biogas will supply about 20 percent of the heat input to Boiler #8 (i.e. 10 MMBtu/hr). Post-combustion controls would be the same for biogas as for fuel oil and, as discussed these technologies were determined as economically infeasible. Also, some pre-combustion controls to remove H_2S from the biogas were evaluated, including a catalyst system, an H_2S purifier (iron sponge system), and the use of ferric chloride. These technologies were not technologically or economically feasible for the reduction of SO_2 emissions.

For modeling purposes and for the lb/hour short-term SO_2 emission limits, a fuel oil sulfur content of 0.55% by weight was used. This fuel oil sulfur content was based on past fuel oil deliveries for McCain's existing Boiler #5. Although the fuel oil supplier that delivers fuel oil to McCain indicates the shipments contain 0.5% by weight or less through certified sulfur content receipts, fuel oil samples taken from the storage tank sometimes indicate a sulfur content with two significant digits with readings of 0.55%. Therefore, the sulfur-in-fuel limit of 0.55% was used to determine short-term emission limits and used to determine modeling impacts.

BACT for SO_2 will require the fuel oil to have a sulfur content of 0.5% by weight or less based on a 30-day rolling average. BACT will also require McCain to meet an SO_2 emission limit of 43.2 lb/hr for Boiler #8 and 29.7 lb/hr for Boiler #9.

<u>**Particulate Matter Emissions**</u>

PM emissions are primarily generated from the entrainment of ash and soot in the flue gas. Control technologies to reduce particulate emissions (PM) typically involve on-the-stack collection devices such as electrostatic precipitators (ESP), scrubbers, and fabric filters. These post control devices were determined to be economically infeasible. BACT for PM from the new boilers will be the use of low sulfur (0.5% by weight) fuel oil and good combustion practices to meet an emission limit of 0.08 lb/MMBtu.

To meet BACT for visible emissions, McCain's Boilers #8 and #9 respective stacks will not exceed 20% opacity on a six (6) minute block average basis, except for one (1) six (6) minute block average period of not more than 27% opacity. Continuous Opacity Monitors (COMS) will be installed to demonstrate compliance.

<u>**Carbon Monoxide and Volatile Organic Compounds**</u>

Emissions of carbon monoxide and volatile organic compounds are primarily the result of incomplete combustion caused by low oxygen concentrations, low furnace temperatures, or short residence time. Boiler design features that increase fuel/air mixing, and provide uniform temperatures promote complete combustion of CO and organics. Control of CO and VOC emissions is achieved by providing sufficient oxygen in the secondary and tertiary zones in the combustion chamber to ensure maximum oxidation conditions in the boiler. BACT for the control of CO and VOC will be achieved through boiler design and good combustion practices to meet a CO emission limit of 4.0 lb/hour and VOC emission limit of 0.4 lb/hour.

BACT Summary for all criteria pollutants

Pollutant	Emission Limitations (each)	Control Technology
NO_x	0.33 lb/MMBtu	Low NO_x Burners Staged Air Combustion Flue Gas Recirculation Tune-ups
(Boiler #8) SO_2	43.2 lb/hour	0.5% Sulfur Fuel Oil *
(Boiler #9) SO_2	29.7 lb/hour	0.5% Sulfur Fuel Oil *
PM/PM_{10}	0.08 lb/MMBtu	0.5% Sulfur Fuel, Good Combustion
CO	4.0 lb/hour	Boiler Design and Operation
VOC	0.40 lb/hr	Boiler Design and Operation

* Based on a 30-day rolling average

C. Compliance Assurance Monitoring (CAM)

The two new boilers proposed will be subject to the provisions of Compliance Assurance Monitoring (CAM). CAM is applicable because there will be an applicable NOx emission limitation (i.e., 0.33 lb/MMBtu), a control device will be used to achieve compliance (i.e., flue gas recirculation), and potential pre-control device emissions of NOx exceed 100 tons/year, the major source applicability threshold. The objective of the CAM submittal is to identify the monitoring approach that will be used, the indicator ranges to be maintained, and the rationale for selecting the monitoring approach and indicator ranges. EPA regulations and CAM guidance specify that low-NOx burners are not control devices, but FGR is considered a control device for the purpose of CAM applicability. No control devices other than FGR are being proposed for the new boilers. Because no control device will be used to achieve compliance with emission limits for any other pollutants, the new boilers are subject to CAM only for NOx.

In addition to the two new boilers, the existing Boiler #5 at the plant is also subject to the provisions of CAM for NOx. FGR is used to help achieve the 0.30 lb/MMBtu NOx emission limit for this boiler, and pre-control device NOx emissions exceed 100 tons/year. No other control devices are associated with this boiler. Therefore, existing Boiler #5 is also subject to CAM for NOx.

Boilers #1 and #4, the emergency generator, the fire pump engine, the two dryers, and the biogas flare do not use any control device to meet emission limitations for any pollutant. The fryers are PM controlled with rotoclones, however, pre-control PM emissions less than 100 tons/year. Therefore, this equipment is not subject to the provisions of the CAM rule.

CAM for Boiler #5

The following summarizes the equipment, emission limits, and monitoring requirements.

Emission Unit	Boiler #5
Applicable Regulation	Initial Part 70 Air License, A-436-70-A-I
Emission Limit	0.30 lb/MMBtu 29.6 lb/hr
Monitoring Requirements	Stack test upon Department request
Control Technology	Flue Gas Recirculation

CAM Plan Monitoring Approach for Boiler #5

	Indicator #1
Indicator	FGR Damper
General Criteria	
Measurement Method	Observation of Damper Position
Indicator Range	The position of the damper has been determined by the manufacturer and the damper is bolted in a fixed position. If the damper malfunctions and is closed during boiler operation, it is considered an excursion. The operator is notified and corrective action is taken.
Performance Criteria	
Data Representation	The FGR damper must be open while the boiler is operating.
QA/QC Practices and Criteria	Not Applicable
Monitoring Frequency	Operator confirms the damper is open once daily, if the boiler is operational.
Data Collection Procedures	Records are maintained to document damper checks.
Averaging Period	Not Applicable

NOx emissions from Boiler #5 are controlled through use of a low-NOx burner, staged air combustion, and FGR. Only FGR is considered a control device under the CAM rule. The position of the FGR damper has been established by the boiler and burner manufacturers and is bolted in a fixed position. There is no FGR fan, and the damper position is not variable. The performance indicator for proper operation of the FGR is the position of the FGR damper, as set by the manufacturer. If the damper is closed, boiler flue gas will not be recirculated back to the combustion chamber. Once per day, when Boiler #5 is operational, an operator will check that the FGR damper is open. A note is made in a log to document the damper check. If the damper were to malfunction and close, corrective action would be taken.

<u>CAM for Boiler #8 and #9</u>

The following summarizes the equipment, emission limits, and monitoring requirements.

Emission Unit	Boiler #8 and #9
Applicable Regulation	Amendment #1, A-436-70-B-A
Emission Limit	0.33 lb/MMBtu 16.3 lb/hr
Monitoring Requirements	Stack test upon Department request
Control Technology	Flue Gas Recirculation on each boiler

CAM Plan Monitoring Approach for the Boilers #8 and #9

	Indicator #1	**Indicator #2**
Indicator	FGR Fan	FGR Damper
General Criteria		
Measurement Method	Observation of Fan Blower	Position of FGR Damper
Indicator Range	The FGR fan is operational when the boiler is running, except during startup and shutdown. If the fan blower is not operating, an alarm is triggered, the problem is identified, and corrective action is taken.	The FGR damper is operational when the boiler is running, except during startup and shutdown. If the damper is closed, an alarm is triggered, the problem is identified, and corrective action is taken.
Performance Criteria		
Data Representativeness	The FGR fan must be operational when the boiler is running, except during startup and shutdown. The blower is operated at a constant speed established by the manufacturer. Accuracy is not applicable.	The FGR damper must be open when the boiler is running, except during startup and shutdown. Accuracy is not applicable

QA/QC Practices and Criteria	The manufacturer does not recommend any QA/QC procedures for the FGR fan.	None
Monitoring Frequency	Operator confirms the fan blower is operational once daily, if the boiler is operational.	Operator confirms that the damper is open once daily, if the boiler is operational.
Data Collection Procedures	Records are maintained to document fan blower checks.	Records are maintained to document damper checks.
Averaging Period	Not applicable	Not applicable

Monitoring Approach Justification

As indicated above, NO_x emissions from Boilers #8 and #9 will be controlled through use of a low-NO_x burner, staged air combustion, and FGR. Only FGR is considered a control device under the CAM rule. For each boiler, the FGR fan will be controlled from the PLC to start at the same time as the combustion fan air. The blower will be operated at a constant speed established by the boiler and burner manufacturers during the initial startup period for each boiler following installation. The FGR damper will also be controlled from the PLC. The position of the damper will vary with operating conditions. One stack test will be conducted to confirm that NO_x emissions limits for the two boilers are met.

The performance indicators for proper operation of the FGR will be operation of the FGR fan and damper when the boiler is running, except during startup and shutdown. If the fan blower is not operating, less boiler flue gas may be recirculated back to the combustion chamber. If the damper is closed, no flue gas is recirculated. Failure of the fan blower or complete closure of the damper will trigger an alarm. In addition, once a day, when the boiler is operational, an operator will check that the FGR fan blower is running and that the damper is open. A note will be made in a log to document that the FGR fan blower and FGR damper have been checked. If the blower is not operating or the damper is closed, corrective action will be taken.

D. Streamlining for Boilers #8 and #9

Opacity
McCain accepts streamlining for opacity requirements. Chapter 101, Section 2(B)(1)(a)(i) of the Department's regulations and New Source Performance Standards (NSPS) requirements are applicable. The BACT limit was determined through this Air Emission License Amendment, A-436-70-B-A. The BACT opacity limit is as stringent, therefore, only the BACT opacity limit is included in this license.

Particulate Matter
McCain accepts streamlining for particulate matter requirements. Chapter 103 of the Department's regulations and Best Available Control Technology (BACT) requirements are applicable. The BACT particulate matter limit is more stringent. Therefore, only the more stringent BACT particulate matter limit is included in this license.

Sulfur Dioxide
McCain accepts streamlining for sulfur dioxide requirements. Chapter 106 and NSPS limits are applicable. The Best Available Control Technology (BACT) sulfur dioxide limit is as stringent. Therefore, only BACT requirements are included in this license.

Periodic Monitoring
Periodic monitoring shall consist of record keeping which includes records of fuel use through purchase receipts indicating amounts (gallons) and analysis of fuel oil samples for percent sulfur by weight.

Continuous emission monitoring includes operation of a continuous monitor for opacity for each of the proposed Boilers #8 and #9 in accordance with the applicable requirements in Chapter 117 of the Department's Regulations.

E. **Updated Flare Emissions**

McCain has proposed to revise the maximum heat input capacity and potential licensed SO_2 emissions for the existing flare, solely due to the availability of more recent biogas information. This revision does not reflect a change in actual emissions or operation of the flare. Based on the new data, calculations of maximum design capacity of the flare will go from 25.1 MMBtu/hr to 26.5 MMBtu/hr and the SO_2 licensed lb/hr emission limit will go from 19.1 lb/hr to 29.3 lb/hr. Actual operation of the flare is expected to decrease substantially following installation of the new boilers, as biogas will be combusted in Boiler #8 whenever possible. Furthermore, no change is being proposed to the annual biogas production limit specified in the current Part 70 air license. For these reasons, the changes to the flare do not constitute a modification and emissions from the flare were not included in the netting analysis.

F. **Facility Emissions**

Total Licensed Annual Emissions for the Facility (Tons/year)
(used to calculate the license fee)

Equipment	PM	PM_{10}	SO_2	NO_X	CO	VOC
Boiler #1	19.7	19.7	206.3	49.3	3.3	0.9
Boiler #4	52.6	52.6	550.1	105.1	8.8	2.5
Boiler #5	34.6	34.6	224.3	129.6	69.2	3.7
Boiler #8	17.4	17.4	189.2	71.6	17.4	1.8
Boiler #9	17.4	17.4	130.2	71.6	17.4	1.8
Fryers	63.9	63.9	--	--	--	--
Dryers	41.2	41.2	--	--	--	--
Biogas Flare	--	--	83.8	--	--	--
Fire Pump	0.1	0.1	0.1	1.1	0.2	0.1
Emrg diesel gen	0.1	0.1	0.1	1.8	0.4	0.1
TOTALS (TPY)	**247.0**	**247.0**	**1384.1**	**430.1**	**116.7**	**10.9**

III. AMBIENT AIR QUALITY ANALYSIS

A. Overview

A combination of screening and refined modeling was performed to show that emissions from McCain's, in conjunction with other sources, would not cause or contribute to violations of Maine Ambient Air Quality Standards (MAAQS) for SO_2, PM_{10}, NO_2 and CO or to Class II increments for SO_2, PM_{10} and NO_2.

Based upon the distance of the source to any Class I area and the magnitude of proposed emissions, the affected Federal Land Managers (FLMs) and MEDEP-BAQ have determined that an assessment of Class I Air Quality Related Values (AQRVs) is not required for McCain's.

B. Model Inputs

The ISCST3 model was used in refined simple terrain mode to address standards and increments in all areas. In addition, the COMPLEX-I VALLEY (CI-VM) model was used to evaluate impacts in intermediate and complex terrain, i.e., areas where terrain elevations exceed the proposed stack-top elevations. Since McCain's stacks are greater than H + 0.5L (where H is the height of the controlling structure and L is the lesser of the height or maximum projected width of that structure), no cavity analyses were performed.

The SCREEN3 model was used to account for the flared biogas emissions from the wastewater treatment facility when the biogas is not fired in Boiler #8.

All modeling was performed in accordance with all applicable requirements of the Maine Department of Environmental Protection, Bureau of Air Quality (MEDEP-BAQ) and the United States Environmental Protection Agency (USEPA).

A valid 5-year hourly meteorological off-site database was used for the refined modeling. The wind data was collected at a height of 10.00 meters at the Caribou National Weather Service station meteorological site during the 5-year period 1985-1989. Missing data were interpolated or coded as missing. Surface data collected at Loring Air Force Base were substituted for missing data. Hourly cloud cover, ceiling height and surface wind speed from Caribou NWS were used to calculate stability. Hourly mixing heights were derived from surface and upper air data collected at Caribou NWS station.

Stack parameters used in the modeling for McCain's facility and other nearby sources are listed in Table III-1. The modeling analysis accounted for the potential of building wake effects on emissions from all modeled stacks that are below their respective formula GEP stack heights.

Table III-1: Stack Parameters

Facility/Stack	Stack Base Elevation (m)	Stack Height (m)	GEP Stack Height (m)	Stack Diameter (m)	UTM Easting NAD27 (km)	UTM Northing NAD27 (km)
CURRENT/PROPOSED						
McCain Foods, Inc.						
Stack #1 (Boiler #1)	194.77	22.86	33.02	0.76	583.818	5168.125
Stack #4 (Boiler #4)	194.77	27.74	33.02	1.42	583.828	5168.146
Stack #5 (Boiler #5)	194.77	33.53	33.02	1.14	583.800	5168.141
Stack #6 (Co-Product Fryer)	194.77	17.07	33.02	0.50	583.822	5168.106
Stack #7 (Prime Fryer)	194.77	14.63	33.02	0.50	583.843	5168.101
Stack #8 (Batter Fryer)	194.77	16.92	28.96	0.50	583.868	5168.094
Stack #9 (Batter Fryer)	194.77	16.92	28.96	0.50	583.872	5168.103
Stack #10 (Prime – Line 1 Dryer)	194.77	13.72	28.83	0.76	583.824	5168.064
Stack #11 (Prime – Line 1 Dryer)	194.77	13.72	28.83	0.76	583.825	5168.065
Stack #12 (Prime – Line 1 Dryer)	194.77	13.72	33.02	0.76	583.830	5168.074
Stack #13 (Prime – Line 1 Dryer)	194.77	13.72	33.02	0.76	583.831	5168.077
Stack #14 (Batter – Line 3 Dryer)	194.77	14.33	28.96	0.76	583.865	5168.102
Stack #15 (Batter – Line 3 Dryer)	194.77	14.33	28.83	0.76	583.870	5168.112
Stack #16 (Batter – Line 3 Dryer)	194.77	14.33	28.83	0.76	583.873	5168.120

Stack #17 (Boiler #8)	194.77	27.43	33.02	0.91	583.828	5168.134
Stack #18 (Boiler #9)	194.77	22.86	32.66	0.91	583.827	5168.132
JM Huber Corporation						
Main Stack	196.60	45.70	76.50	1.93	583.640	5168.280
Stack – Press Vents	195.70	29.30	77.11	1.52	583.650	5168.260
BASELINE – 1987						
McCain Foods, Inc.						
Stack #1	194.77	22.86	28.96	0.76	583.818	5168.125
Stack #2	194.77	22.86	28.96	0.76	583.820	5168.130
Stack #3	194.77	22.86	28.96	1.07	583.825	5168.135
Stack #4	194.77	22.86	28.96	1.42	583.828	5168.146
JM Huber Corporation						
Main Stack	196.60	45.70	76.50	1.93	583.640	5168.280
Press Vents	195.70	29.30	77.11	1.52	583.650	5168.260
BASELINE – 1977						
McCain Foods, Inc.						
Stack #3	194.77	12.19	28.96	1.07	583.825	5168.135
Stack #4	194.77	12.19	28.96	1.42	583.828	5168.146

Emission parameters for McCain's and other nearby sources for MAAQS and increment modeling are listed in Table III-2. Emission parameters for McCain's are based on the maximum license allowed operating configuration. For the purpose of determining NO_2 and PM_{10} impacts, all NO_x and PM emissions were conservatively assumed to convert to NO_2 and PM_{10}, respectively.

Table III-2 : Emission Parameters

Facility/Stack	Averaging Period(s)	SO_2 (g/s)	PM_{10} (g/s)	NO_2 (g/s)	CO (g/s)	Stack Temp (K)	Stack Velocity (m/s)
CURRENT							
McCain Foods, Inc.							
Stack #1 (Boiler #1)	All	5.93	0.57	1.42	0.10	500.00	6.07
Stack #4 (Boiler #4)	All	15.83	1.51	3.02	0.25	456.48	4.70
Stack #5 (Boiler #5)	All	6.45	1.00	3.73	1.99	470.93	15.83
Stack #6 (Co-Product Fryer)	All	nm	0.72	nm	nm	343.15	14.43
Stack #7 (Prime Fryer)	All	nm	0.36	nm	nm	344.82	24.05
Stack #8 (Batter Fryer)	All	nm	0.38	nm	nm	360.93	24.05
Stack #9 (Batter Fryer)	All	nm	0.38	nm	nm	360.93	24.05
Stack #10 (Prime – Line 1 Dryer)	All	nm	0.12	nm	nm	313.71	15.77
Stack #11 (Prime – Line 1 Dryer)	All	nm	0.12	nm	nm	313.71	15.77
Stack #12 (Prime – Line 1 Dryer)	All	nm	0.12	nm	nm	313.71	15.77
Stack #13 (Prime – Line 1 Dryer)	All	nm	0.12	nm	nm	313.71	15.77
Stack #14 (Batter – Line 3 Dryer)	All	nm	0.24	nm	nm	319.26	16.56

Stack #15 (Batter – Line 3 Dryer)	All	nm	0.24	nm	nm	319.26	16.56
Stack #16 (Batter – Line 3 Dryer)	All	nm	0.24	nm	nm	319.26	16.56
Stack #17 (Boiler #8)	All	5.44				591.48	14.76
	All		0.50	2.06	0.50	592.04	13.96
Stack #18 (Boiler #9)	All	3.74	0.50	2.06	0.50	592.04	13.96
JM Huber Corporation							
Main Stack (Firing Wood)	All	nm	2.59	6.93	28.98	398.40	21.21
Main Stack (Firing Oil)	All	5.25	nm	nm	nm	367.60	7.06
Stack – Press Vents	All	nm	0.56	nm	nm	310.80	15.20
CURRENT ACTUALS							
McCain Foods, Inc.							
Boiler #1	Short Term	1.91	0.30	nm	nm	500.00	1.95
	Annual	1.55	0.22	0.54	nm	500.00	1.95
Boiler #4	Short Term	5.36	0.85	nm	nm	456.48	1.59
	Annual	5.22	0.73	1.45	nm	456.48	1.59
Boiler #5	Short Term	3.25	0.50	nm	nm	470.93	7.47
	Annual	2.61	0.40	1.51	nm	470.93	7.47
JM Huber Corporation							
Main Stack	Short Term	0.20	2.20	nm	nm	398.40	18.02
	Annual	0.19	2.07	5.54	nm	398.40	14.86
Stack – Press Vents	Short Term	nm	0.48	nm	nm	310.80	12.85
	Annual	nm	0.45	nm	nm	310.80	12.11
BASELINE – 1987							
McCain Foods, Inc.							
Stack #1	Annual	nm	nm	0.17	nm	500.00	3.52
Stack #2	Annual	nm	nm	0.06	nm	500.00	3.52
Stack #3	Annual	nm	nm	0.81	nm	550.00	5.54
Stack #4	Annual	nm	nm	0.73	nm	550.00	3.15
JM Huber Corporation							
Main Stack	Annual	nm	nm	2.43	nm	378.80	18.53
BASELINE – 1977							
McCain Foods, Inc.							
Stack #3	Short Term	8.01	0.73	nm	nm	550.00	4.32
	Annual	3.79	0.34	nm	nm	550.00	3.02
Stack #4	Short Term	8.01	0.73	nm	nm	550.00	2.46
	Annual	3.79	0.34	nm	nm	550.00	1.72

Key: nm = Not Modeled

A SCREEN3 analysis was completed to account for the firing of biogas emissions from the flare at the wastewater treatment facility when not being burned in Boiler #8. Parameters used in the modeling for McCain's proposed flare are listed in Table III-3. For the purpose of determining SO_2 impacts, all H_2S emissions were conservatively assumed to convert to SO_2.

Table III-3 : Flare Stack/Emission Parameters

Facility/Stack	Averaging Periods	SO_2 Emission Rate (g/s)	Flare Height (m)	Effective Release Height (m)	Total Heat Release (Cal/Sec)
McCain Foods, Inc.					
Wastewater Flare	All	3.70	6.10	10.61	1,852,168

C. Single Source Modeling Impacts

ISCST3 refined modeling, using the latest year of meteorological data (1989), and CI-VM screening modeling was performed for 7 operating scenarios that represented 4 maximum, 2 typical and 1 minimum operational scenarios for McCain's. Only the load case(s) that predicted the maximum impacts for all pollutants/averaging periods were examined further in the ISCST3 refined modeling and CI-VM screening modeling.

Model results for McCain's alone (less the flare), in simple and complex terrain, are shown in Tables III-4 and III-5, respectively. All SO_2, PM_{10} and NO_2 averaging period impacts were significant in both modeling analyses. It was demonstrated that McCain's would have no significant impacts for all CO averaging periods in simple and complex terrain; thus, no further analysis was required for these pollutant/terrain combinations. Pollutant averaging periods where the respective maximum predicted impact exceeded the respective significance level are indicated in boldface type.

Table III-4 : Maximum ISCST3 Predicted Impacts from McCain's Alone

Pollutant	Averaging Period	Max Impact (μg/m³)	Receptor UTM E (km)	Receptor UTM N (km)	Receptor Elevation (m)	Class II Significance Level (μg/m³)
SO_2	3-hour	**685.28**	586.000	5169.000	243.84	**25**
	24-hour	**172.17**	583.600	5168.400	201.17	**5**
	Annual	**16.34**	584.000	5169.500	205.74	**1**
PM_{10}	24-hour	**111.57**	583.000	5168.400	196.60	**5**
	Annual	**12.27**	583.800	5168.400	196.60	**1**
NO_2	Annual	**4.91**	584.000	5169.500	205.74	**1**
CO	1-hour	67.07	582.869	5169.861	237.74	**2000**
	8-hour	26.78	586.000	5169.500	240.79	**500**

Table III-5 : Maximum CI-VM Predicted Impacts from McCain's Alone

Pollutant	Averaging Period	Max Impact (μg/m³)	Receptor UTM E (km)	Receptor UTM N (km)	Receptor Elevation (m)	Class II Significance Level (μg/m³)
SO_2	3-hour	**379.46**	582.850	5169.871	237.74	**25**
	24-hour	**105.40**	582.850	5169.871	237.74	**5**
	Annual	**33.73**	582.850	5169.871	237.74	**1**
PM_{10}	24-hour	**25.35**	583.030	5169.581	228.60	**5**
	Annual	**8.11**	583.030	5169.581	228.60	**1**
NO_2	Annual	**10.23**	582.850	5169.871	237.74	**1**
CO	1-hour	28.47	583.110	5188.991	262.12	**2000**
	8-hour	19.93	583.110	5188.991	262.12	**500**

D. Combined Source Modeling Impacts

Because modeled impacts from McCain's alone were greater than significance levels for all SO_2, NO_2 and PM_{10} averaging periods, other sources not explicitly included in the modeling analysis must be included by using representative background concentrations for the area. Northern Maine rural background concentrations derived from representative sites are listed in Table III-6.

TABLE III-6 : Background Concentrations (μg/m³)

Pollutant	Averaging Period	Background Concentration	Date
SO_2	3-hour	**24**	2003[1]
	24-hour	**13**	
	Annual	**5**	
PM_{10}	24-hour	**32**	2003[1]
	Annual	**10**	
NO_2	Annual	**11**	1995[2]

Notes:
[1] Robinson site, Easton
[2] TLSP site, Cape Elizabeth

MEDEP-BAQ identified other sources whose impacts would potentially be significant in McCain's significant impact area. Only one other source was explicitly included in the modeling: J.M. Huber Corporation (Easton).

Table III-7 summarizes the maximum combined source impacts. The predicted impacts, which included the impacts from the flare (regardless of location), were added to conservative background concentrations to obtain the final predicted impact.

All combined source SO_2, PM_{10} and NO_2 averaging period impacts, including emissions from the flare and background concentrations, were below their respective MAAQS. Because the impacts using this method meet MAAQS, no further MAAQS modeling for McCain's need be performed.

Table III-7 : ISCST3/CI-VM Maximum Combined Source Impacts

Pollutant	**Averaging Period**	**ISCST3/ CI-VM Max (µg/m³)**	**Receptor UTM-E (km)**	**Receptor UTM-N (km)**	**Receptor Elevation (m)**	**SCREEN3 Flare Max (µg/m³)**	**Back-ground (µg/m³)**	**Max Total Impact (µg/m³)**	**MAAQS (µg/m³)**
SO_2	3-hour	**685.95***	586.000	5169.000	243.84	**36.72**	**24**	**746.67**	1150
	24-hour	**175.11***	583.600	5168.400	201.17	**16.32**	**13**	**204.43**	230
	Annual	**34.76****	582.850	5169.871	237.74	**3.26**	**5**	**43.02**	57
PM_{10}	24-hour	**111.57***	583.000	5168.400	196.60	N/A	**32**	**143.57**	150
	Annual	**12.99***	583.800	5168.400	196.60	N/A	**10**	**22.99**	40
NO_2	Annual	**10.53****	582.850	5169.871	237.74	N/A	**11**	**21.53**	100

Key: * = ISC3 Result, ** = CI-VM Result
N/A=not applicable

E. Increment

McCain's maximum increment impacts were predicted using ISCST3 refined modeling in simple terrain and CI-VM in complex terrain. For addressing increment impacts in intermediate terrain (i.e., terrain above stack top and below plume centerline), the ISCST3 and CI-VM were run individually, and the higher of the two increment impacts chosen.

Results of the single and combined source increment analyses are shown in Tables III-8 and Table III-9, respectively. All McCain's alone and combined source modeled increment impacts were below all SO_2, PM_{10} and NO_2 increment standards. Because the predicted increment impacts meet increment standards, no further increment modeling for McCain's needed to be performed.

Table III-8 : Increment Consumption in Class II Areas from McCain's Alone

Pollutant	Averaging Period	Max Impact (µg/m³)	Receptor UTM-E (km)	Receptor UTM-N (km)	Receptor Elevation (m)	Class II Increment (µg/m³)
SO_2	3-hour	99.71*	583.500	5168.200	201.17	512
	24-hour	18.92*	583.566	5168.214	201.17	91
	Annual	8.29**	583.120	5170.901	256.03	20
PM_{10}	24-hour	3.25*	583.600	5168.200	201.17	30
	Annual	1.37**	582.850	5169.871	237.74	17
NO_2	Annual	4.66**	583.110	5170.991	262.12	25

Key: * = ISC3 Result, ** = CI-VM Result

Table III-9 : Combined Source Class II Increment Consumption

Pollutant	Averaging Period	Max Impact (µg/m³)	Receptor UTM-E (km)	Receptor UTM-N (km)	Receptor Elevation (m)	Class II Increment (µg/m³)
SO_2	3-hour	99.71*	583.500	5168.200	201.17	512
	24-hour	18.93*	583.566	5168.214	201.17	91
	Annual	8.34**	583.120	5170.901	256.03	20
PM_{10}	24-hour	21.81*	583.566	5168.214	201.17	30
	Annual	2.23**	583.060	5171.071	265.17	17
NO_2	Annual	5.22**	583.110	5170.991	262.12	25

Key: * = ISC3 Result, ** = CI-VM Result

Federal guidance and Chapter 140 of MEDEP regulations require that any major source undergoing a major modification provide additional analyses of impacts that would occur as a direct result of the general, commercial, residential, industrial and mobile-source growth associated with the construction and operation of that source.

GENERAL GROWTH: Very minimal increases in local emissions due to construction related activities are expected to occur, as the modification will involve relatively minor general construction. Increases in potential emissions of NO_x due to increased traffic to the mill will be minimal, as there will be an insignificant increase in truck traffic in and out of the facility (transporting raw materials, finished product, etc). Fugitive PM emissions (if any) will be minimized by the use of "Best Management Practices".

RESIDENTIAL, COMMERCIAL AND INDUSTRIAL GROWTH: Population growth in the impact area of a proposed source can be used as a surrogate factor for the growth in emissions from combustion sources. Since the population in Aroostook County has declined approximately 16% between 1990 and 2004 and the modification will not create any new jobs, no new significant residential, commercial and industrial growth will follow from the modification associated with this source.

MOBILE SOURCE AND AREA SOURCE GROWTH: Since area and mobile sources are considered minor sources of NO_2, their contribution to increment has to be evaluated. Technical guidance from the Environmental Protection Agency points out that screening procedures can be used to determine whether additional detailed analyses of minor source emissions are required. Compiling a minor source inventory may not be required if it can be shown that little or no growth has taken place in the impact area of the proposed source since the baseline date (February 8, 1988) was established. Emissions during the calendar year 1987 were used to determine baseline emissions. Based on vehicle emissions modeling conducted by MEDEP-BAQ, VMT growth between 1987 and 2004 was approximately 18.5% for Aroostook County since the minor source baseline date was established. However, any emissions associated with the minimal increases in vehicle miles traveled have been more than offset by decreases in NO_x emissions in terms of reduced average grams-per-vehicle-mile emission rates since the minor source baseline date was established. Therefore, no increase in actual NO_x emissions from mobile sources is expected. No further detailed analyses of mobile NO_2 emissions are needed.

F. Class I Impacts

Based upon the distance of the source to any Class I area and the magnitude of proposed emissions, the affected Federal Land Managers (FLMs) and MEDEP-BAQ have determined that an assessment of Class I Air Quality Related Values (AQRVs) is not required for McCain's.

G. Summary

In summary, it has been demonstrated that McCain's in its proposed configuration will not cause or contribute to a violation of any SO_2, PM_{10}, NO_2 or CO averaging period MAAQS. It has also been demonstrated that McCain's will not cause or contribute to a violation of any SO_2, PM_{10}, or NO_2 averaging period Class II increment standards.

ORDER

Based on the above Findings and subject to conditions listed below the Department concludes that emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-436-70-B-A subject to the conditions found in Air Emission License A-436-70-A-I and to the following conditions:

(1) The following Condition shall replace Condition (18) of Air Emissions License, A-436-70-A-I.

(18) Biogas Flare

A. McCain is licensed to flare biogas, with a flare heat input capacity of 26.5 MMBtu/hr.

B. Emissions from the flare shall not exceed the following limit:

Pollutant	***lb/hr***	***Origin and Authority***	***Enforceability***
SO_2	29.3	MEDEP Chapter 140, BPT	**Enforceable by State-only**

C. McCain is limited to an annual total of flaring and/or combusting 240 million cubic feet of biogas. Compliance shall be demonstrated by maintaining records of the annual volume of biogas produced on a twelve-month rolling total basis.

(2) The following are new Conditions to Air Emissions License, A-436-70-A-I.

(34) McCain shall not operate Boilers #2 (22.5 MMBtu/hr) and #3 (60.0 MMBtu/hr) following installation and start-up of Boilers #8 and #9. [MEDEP Chapter 140, BACT]

(35) Boilers #8 and #9 [MEDEP Chapter 140, BACT]

A. Boilers #8 and #9 shall each not exceed a maximum firing rate of 330.2 gal/hr (based on standard conditions). Daily fuel flow data and boiler operating time shall be used to demonstrate compliance.

B. McCain shall be limited to the firing of #6 fuel oil with a maximum sulfur content not to exceed 0.5% by weight in the two new boilers on a 30 day rolling average basis. In addition, Boiler #8 shall be able to fire biogas from the onsite wastewater treatment facility. Fuel use records and delivery receipts shall be maintained and available to the Department upon request for all fuel burned in each of the two new boilers. Compliance shall be demonstrated by fuel records documenting fuel oil sulfur content, based on a 30-day rolling average. The sulfur content of the fuel oil combusted in Boilers #8 and #9 shall not exceed 0.55% by weight.

C. McCain shall do annual tune-ups for Boiler #8 and #9 as described in Chapter 138 Sections 3(L)(1) and maintain the recordkeeping of the tune-ups as described in Section 3(L)(2).

D. Boilers #8 and #9 shall each be limited to the following emissions: [MEDEP Chapter 140, BACT]

1. PM

Pollutant	**Emission Rate**
PM	0.08 lb/MMBtu
	4.0 lb/hr

Compliance with lb/MMBtu and lb/hr shall be based on stack testing, conducted according to 40 CFR Part 60 Appendix A Method 5 upon Department request.

2. PM_{10}

Pollutant	**Emission Rate**
PM_{10}	4.0 lb/hr

Compliance with the lb/hr limit shall be based on stack testing, conducted according to 40 CFR Part 60 Appendix A Method 201A or 201 and Method 202 upon Department request.

3. SO_2

Pollutant	**Emission Rate**
Boiler #8 SO_2	43.2 lb/hr
Boiler #9 SO_2	29.7 lb/hr

Compliance with lb/hr shall be based on stack tests upon Department request.

4. NO_X

Pollutant	**Emission Rate**
NO_X	0.33 lb/MMBtu
	16.4 lb/hr

Compliance with lb/MMBtu and lb/hr shall be based on stack tests upon Department request.

5. CO

Pollutant	**Emission Rate**
CO	4.0 lb/hr

Compliance with lb/hr shall be based on stack tests upon Department request.

6. VOC

Pollutant	**Emission Rate**
VOC	0.40 lb/hr

Compliance shall be demonstrated through stack tests in accordance with 40 CFR Part 60, Appendix A, Method 25A upon Department request.

7. Opacity

	Stack Limit
Opacity	20% on a six (6) minute block average

Compliance shall be demonstrated through the operation of a continuous opacity monitoring system and an initial performance test conducted in accordance with 40 CFR Part 60.

E. Best Available Control Technology (BACT)

- The lb/MMBtu NO_x and PM limits and the pounds per hour limits are demonstrated by stack testing in accordance with 40 CFR, Part 60, Appendix A upon request by the Department. [MEDEP Chapter 140, BACT]

- McCain shall operate and maintain a continuous opacity monitoring system (COMS) for each proposed boiler (Boiler #8 and #9) measuring the opacity of emissions discharged to the atmosphere. The COMS shall be operated in accordance with applicable procedures of 40 CFR Part 60.13, 40 CFR Part 60, Appendices B and F, and Chapter 117 of the MEDEP regulations. [MEDEP Chapter 140, BACT]

- McCain shall comply with the reporting and record keeping requirements as stated in 40 CFR Part 60.48c.

- McCain shall comply with all other applicable requirements of Federal New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc.

- McCain shall operate Boilers #8 and #9 such that the visible emissions from their respective stacks do not exceed 20% opacity on a six (6) minute block average basis, except for one (1) six (6) minute block average period per hour of not more than 27% opacity. Compliance shall be demonstrated through operation and maintenance of a COMS for each boiler. [MEDEP Chapter 140, BACT & 40 CFR Part 60 Subpart Dc]

- McCain shall maintain records of annual No. 6 fuel use indicating the quantity of fuel consumed (gallons) and the heat content of the fuel, demonstrated by purchase records from the supplier, and the percent (%) sulfur content of the fuel oil by weight on a 30-day rolling average basis.
[MEDEP Chapter 140, BACT]

F. **Continuous Opacity Monitoring System (COMS)**

The COMS required by this license shall be the primary means of demonstrating compliance with opacity standards set by this Order, statute, state or federal regulation, as applicable, for Boilers #8 and #9. The licensee shall comply with the following: [MEDEP Chapter 140, BPT]

a. **Performance Specifications**
The COMS shall be operated in accordance with applicable procedures under Performance Specification I of Appendix B of 40 CFR Part 60. The COMS shall meet the performance criteria, operating procedures, and quality assurance procedures in accordance with the applicable requirements of 40 CFR Part 60.13, 40 CFR Part 60, Appendices B and F, and Chapter 117 of the Departments regulations.

The COMS data shall be monitored and recorded continuously, as required by Chapter 117 of the Department regulations, 40 CFR Part 52.1020(c)(24), and 40 CFR Part 60.13, Appendices B and F, except for period of calibration checks, zero and span adjustments and preventive maintenance or equipment malfunction. The COMS shall achieve the data recovery requirements of

Chapter 117, Section 5 of the Department regulations (i.e., 95% data recovery as a percentage of source operation time per calendar quarter) and 40 CFR Part 52.1020(c)(24).
[MEDEP Chapter 117]

b. **Record keeping**
For the COMS required by this license, the licensee shall maintain records of the most current six year period and the records shall include:
1. Documentation that the COMS is continuously accurate, reliable, and operated in accordance with Chapter 117 and 40 CFR Part 52.1020(c)(24); [MEDEP Chapter 117]
2. Records of all measurements, performance evaluations, calibration checks, and maintenance or adjustments for the COMS as required by 40 CFR Part 51 Appendix P; and [MEDEP Chapter 117]
3. A report or other data indicative of compliance with the applicable opacity standard for those periods when the COMS was not in operation or produced invalid data. In the event the Department does not concur with the licensee's compliance determination, the licensee shall, upon the Department's request, provide additional data, and shall have the burden of demonstrating that the data is indicative of compliance with the applicable standard.

G. **Quarterly Reporting**

The licensee shall submit a Quarterly Report to the Bureau of Air Quality within 30 days after the end of each calendar quarter, detailing the following, for the control equipment, parameter monitors, Continuous Emission Monitoring Systems (CEMS) or Continuous Opacity Monitoring Systems (COMS) required by this license. [MEDEP Chapter 117]

A. All control equipment downtimes and malfunctions;
B. All CEMS or COMS downtimes and malfunctions;
C. All parameter monitor downtimes and malfunctions;
D. All excess events of emission and operational limitations set by this Order, Statute, state or federal regulations, as appropriate. The following information shall be reported for each excess event;
   1. Standard exceeded;
   2. Date, time, and duration of excess event;
   3. Amount of air contaminant emitted in excess of the applicable emission standard expressed in the units of the standard;
   4. A description of what caused the excess event;
   5. The strategy employed to minimize the excess event; and

6. The strategy employed to prevent reoccurrence.

E. A report certifying there were no excess emissions, if that is the case.

H. **Stack Testing**

1. The licensee shall conduct emission testing, and demonstrate compliance with the applicable standard within 60 days after receipt of notice from the Bureau of Air Quality.
2. Initial Performance Testing
McCain shall conduct an initial performance test for PM, CO, NO_x and opacity, while firing #6 fuel oil, within 60 days after achieving the maximum production rate at which the plant will be operated but not later than 180 days after the initial startup. All testing shall comply with all of the requirements of the DEP Compliance Test Protocol and with 40 CFR Part 60, as appropriate, or other methods or testing scenarios approved by the Bureau of Air Quality and EPA. A representative of the DEP or Environmental Protection Agency (EPA) shall be given the opportunity to observe the compliance testing.
3. All testing programs shall comply with all of the requirements of the DEP Compliance Test Protocol and with 40 CFR Part 60, as appropriate, or other methods approved by the Bureau of Air Quality and EPA

DONE AND DATED IN AUGUSTA, MAINE THIS DAY OF 2006.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: ____

DAVID P. LITTELL, COMMISSIONER

This amendment shall be reviewed for renewal concurrent with air emission license, A-436-70-A-I.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: November 14, 2005
Date of application acceptance: November 28, 2005
Date filed with Board of Environmental Protection:___________________

This Order prepared by Edwin Cousins, BAQ